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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/732,117	12/07/2000	Lawrence Shungwei Mok	YOR920000399US1	7357
7590 06/29/2005			EXAMINER	
Alvin J. Riddles Box 34 Candlewood Isle New Fairfield, CT 06812			LEO, LEONARD R	
			ART UNIT	PAPER NUMBER
			3753	

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/732,117	Applicant(s) MOK ET AL.	
	Examiner Leonard R. Leo	Art Unit 3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11 and 16-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17 is/are allowed.
- 6) ☒ Claim(s) 11, 16 and 18-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 1, 2005 has been entered.

Claims 11 and 16-20 are pending.

Claim Objections

Claim 17 is objected to because of the following informalities: the recitation of "2" in line 1 was inadvertently amended to claim. Appropriate correction is required.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "integrated circuit having chips" in claims 18-19 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must

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be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 20 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification lacks an adequate written description of the invention. There is no basis for "said planar shaped heat transfer component to carry away *all radiated heat* from said chip-containing electronic apparatus" and "a gas loop is arranged to carry away *all radiated heat* from the apparatus." All radiated heat cannot be dissipated through the surface mounted component, since the sides of the integrated circuit chips radiate heat as well.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Cutchaw (Figures 1-2). Regarding claim 20, as understood, the device of Cutchaw carries away all radiated heat from the contact surface with the chips 32.

Claims 11 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Helt et al (Figure 4). Regarding claim 20, as understood, the device of Helt et al carries away all radiated heat from the contact surface with the chips 50.

Claims 11 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Iversen. Regarding claim 20, as understood, the device of Iversen carries away all radiated heat from the contact surface with the chips 36. Iversen (column 3, lines 60-61) discloses the device is part of a typical closed loop refrigeration system having a heat exchanger, i.e. condenser to condense the working fluid, i.e. gas via ambient air. The device of Iversen produces nucleate boiling of the coolant (e.g. fluorocarbon) at the chips.

Claims 11 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Wilson et al or Hamilton et al (Figure 5). It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). The working fluid is not a structural limitation. Regarding

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claim 20, as understood, the device of Wilson et al or Hamilton et al carries away all radiated heat from the contact surface with the chip package 10 and chips 202-206, respectively.

Claim 20 is rejected under 35 U.S.C. 102(b) as being anticipated by Budelman. As understood, the device of Budelman carries away all radiated heat from the contact surface with the chip 112.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over A in view of Wilson et al, Cutchaw, Helt et al or Budelman.

Wilson et al, Cutchaw, Helt et al or Budelman discloses all the claimed limitations except an embedded pump.

Butt discloses a heat sink apparatus comprising a plurality of electronic components 18 mounted on component 10 having a plurality of serpentine fluid passageways (heavy dashed arrows in Figure 1) for the purpose of improving the heat exchange.

Since Wilson et al, Cutchaw, Helt et al or Budelman and Butt are both from the same field of endeavor and/or analogous art, the purpose disclosed by Butt would have been recognized in the pertinent art of Wilson et al, Cutchaw, Helt et al or Budelman.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Wilson et al, Cutchaw, Helt et al or Budelman a plurality of

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serpentine fluid passageways for the purpose of improving the heat exchange as recognized by Butt. Furthermore, it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *In re Harza*, 274F.2d 669, 124 USPQ 378 (CCPA 1960).

Allowable Subject Matter

Claim 17 is allowed.

Response to Arguments

The anticipatory rejections in view of Kikuchi et al, August et al, Fox et al, Cheon, Butt, and Messina et al are withdrawn in view of the claim amendments.

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

No further comments are deemed necessary at this time.

Conclusion

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Thursday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene can be reached on (571) 272-4930. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

A handwritten signature in cursive script, appearing to read "Leonard R. Leo".

LEONARD R. LEO
PRIMARY EXAMINER
ART UNIT 3753

June 25, 2005